SANTA CRUZ BIOTECHNOLOGY, INC.

KIF4 (A-5): sc-365145

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The kinesins constitute a large family of microtubule-dependent motor proteins, which are responsible for the distribution of numerous organelles, vesicles and macromolecular complexes throughout the cell. Individual kinesin members play crucial roles in cell division, intracellular transport and membrane trafficking events including endocytosis and transcytosis. KIF4A (kinesin family member 4A), also designated KIF4G1, is a 1,232 amino acid nuclear and cytoplasmic protein that belongs to the chromokinesin subfamily of the kinesin-like protein family. KIF4A is highly expressed in hematopoetic tissues, spleen, thymus, bone marrow and fetal liver. KIF4B (kinesin family member 4B) is a 1,234 amino acid nuclear matrix protein that is exclusively expressed in testis. KIF4A and KIF4B are motor proteins that translocate PRC1 to interlocking spindle microtubules during the metaphase to anaphase transition of cytokinesis. KIF4A and KIF4B may participate in mitotic chromosomal positioning and bipolar spindle stabilization.

REFERENCES

1. Oh, S., et al. 2000. Identification of the human homologue of mouse KIF4, a kinesin superfamily motor protein. Biochim. Biophys. Acta 1493: 219-224.
2. Lee, Y.M., et al. 2001. Human kinesin superfamily member 4 is dominantly localized in the nuclear matrix and is associated with chromosomes during mitosis. Biochem. J. 360: 549-556.
3. Kurasawa, Y., et al. 2004. Essential roles of KIF4 and its binding partner PRC1 in organized central spindle midzone formation. EMBO J. 23: 3237-3248.
4. Zhu, C. and Jiang, W. 2005. Cell cycle-dependent translocation of PRC1 on the spindle by KIF4 is essential for midzone formation and cytokinesis. Proc. Natl. Acad. Sci. USA 102: 343-348.
5. Gruneberg, U., et al. 2006. KIF14 and citron kinase act together to promote efficient cytokinesis. J. Cell Biol. 172: 363-372.
6. Wu, G., et al. 2008. A novel role of the chromokinesin KIF4A in DNA damage response. Cell Cycle 7: 2013-2020.
7. Bernasconi, P., et al. 2008. The kinesin superfamily motor protein KIF4 is associated with immune cell activation in idiopathic inflammatory myopathies. J. Neuropathol. Exp. Neurol. 67: 624-632.

CHROMOSOMAL LOCATION

Genetic locus: KIF4A (human) mapping to Xq13.1, KIF4B (human) mapping to 5q33.2; Kif4 (mouse) mapping to X C3, Kif4-ps (mouse) mapping to 12 E.

SOURCE

KIF4 (A-5) is a mouse monoclonal antibody raised against amino acids 361-660 mapping within an internal region of KIF4A of human origin.

PRODUCT

Each vial contains 200 µg IgA kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

KIF4 (A-5) is recommended for detection of KIF4A and KIF4B of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

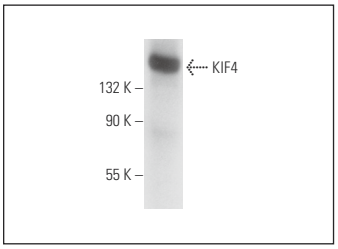
Molecular Weight of KIF4: 140 kDa.

Positive Controls: DU 145 cell lysate: sc-2268.

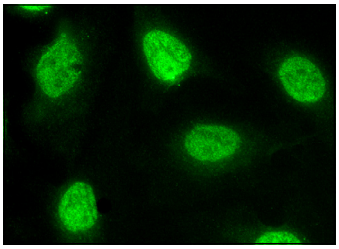
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein L-Agarose: sc-2336 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



KIF4 (A-5): sc-365145. Western blot analysis of KIF4 expression in DU 145 whole cell lysate.



KIF4 (A-5): sc-365145. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Huang, Y., et al. 2018. Upregulation of kinesin family member 4A enhanced cell proliferation via activation of Akt signaling and predicted a poor prognosis in hepatocellular carcinoma. Cell Death Dis. 9: 141.
2. Hu, G., et al. 2019. FOXM1 promotes hepatocellular carcinoma progression by regulating KIF4A expression. J. Exp. Clin. Cancer Res. 38: 188.
3. Wellard, S.R., et al. 2020. Aurora B and C kinases regulate chromosome desynapsis and segregation during mouse and human spermatogenesis. J. Cell Sci. 133: jcs248831.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.